

## Patent claims

1. A compound of formula la or lb,

$$\begin{bmatrix} R_2 & SH & SH & R_2 \\ N & CH & CH_2 & X & A & X & CH_2 & CH & CH & R_3 & R_5 \end{bmatrix}$$
 (Ia),

wherein A is an (n + 1)-valent aliphatic, cycloaliphatic, araliphatic or aromatic radical and n is an integer from 0 to 5,

E is an (m + 1)-valent aliphatic, cycloaliphatic, araliphatic or aromatic radical and m is an integer from 0 to 3,

X is -O-, -COO- or -CHR<sub>4</sub>-, with R<sub>4</sub> and R<sub>3</sub> together forming an ethylene group,

R<sub>1</sub> and R<sub>2</sub> are, each independently of the other, hydrogen or methyl,

R<sub>3</sub> is hydrogen, or R<sub>3</sub> and R<sub>4</sub> together form an ethylene group,

and R₅ is a monovalent aliphatic, cycloaliphatic, araliphatic or aromatic radical.

- 2. A compound of formula la according to claim 1, wherein X is -O- and A is a bivalent radical of a bisphenol or of a cycloaliphatic diol, the radical of a phenol novolak or cresol novolak, the bi- to tetra-valent radical of an isocyanate/polyol adduct or the tri- to hexavalent radical of a tri- to hexa-functional aliphatic polyol.
- 3. A compound of formula la according to claim 1, wherein X is -O- and A is a bivalent

radical of formula 
$$CH_3$$
,  $CH_3$ 

$$-$$
CH $_2$  , the radical of a

phenol novolak or cresol novolak, a trivalent radical of formula

$$\begin{array}{c|c} & & & \\ & & \\ \hline & & \\ & & \\ \hline & & \\ & & \\ \hline & & \\ &$$

- 4. A compound of formula Ia or Ib according to claim 1, wherein  $R_5$  is  $C_1$ - $C_{20}$ alkyl,  $C_5$ - $C_{12}$ -cycloalkyl,  $C_6$ - $C_{10}$ aryl or  $C_7$ - $C_{12}$ aralkyl, each of which is unsubstituted or substituted by one or more amino groups, hydroxyl groups,  $C_1$ - $C_8$ alkoxy groups or halogen atoms.
- 5. A compound of formula la or lb according to claim 1, wherein R<sub>5</sub> is C<sub>2</sub>-C<sub>10</sub>alkyl, C<sub>2</sub>-C<sub>10</sub>aminoalkyl, phenyl, benzyl, cyclohexyl or a radical of formula H<sub>2</sub>N-Z-CH<sub>2</sub>-NH-, wherein Z is a bivalent cycloaliphatic, araliphatic or aromatic radical or a radical of formula -(CH<sub>2</sub>CH<sub>2</sub>NH)<sub>k</sub>-CH<sub>2</sub>-, wherein k is 2 or 3.
- A compound of formula la or lb according to claim 1, wherein R<sub>1</sub> is n-butyl, n-octyl, cyclohexyl, benzyl, 2-aminoethyl, 4-(aminomethyl)pentyl, 5-amino-2-methylpentyl, 3-dimethylaminopropyl, 3-methylaminopropyl, 4-aminocyclohexyl or a radical of formula -CH<sub>2</sub>CH<sub>2</sub>NHCH<sub>2</sub>CH<sub>2</sub>NH<sub>2</sub>,

$$H_3C$$
 $CH_3$ 
 $H_2N$ 
 $CH_3$ 
 $CH_3$ 
 $H_2N$ 
 $H_2N$ 
 $H_2N$ 
 $OF$ 

- A compound of formula la or lb according to claim 1, wherein X is O- and R₁ and R₃ are hydrogen.
- 8. A process for the preparation of a compound of formula la according to claim 1 by reacting a compound of formula lla

wherein A, X,  $R_1$ ,  $R_3$  and n are as defined in claim 1, with thiourea or a thiocyanate and subsequently reacting the resulting episulfide with an amine of formula  $R_5$ -NH- $R_2$  wherein  $R_5$  and  $R_2$  are as defined in claim 1.

A process for the preparation of a compound of formula lb according to claim 1 by reacting a compound of formula llb

$$R_5$$
— $X$ — $CH_2$ — $C$ — $CH$ 
 $R_1$ 
 $R_3$ 
(IIb),

wherein X,  $R_1$ ,  $R_3$  and  $R_5$  are as defined in claim 1, with thiourea or a thiocyanate and subsequently reacting the resulting episulfide with a polyamine of formula E-(NHR<sub>2</sub>)<sub>m+1</sub> wherein E,  $R_2$  and m are as defined in claim 1.

- 10. A composition comprising
  - (A) an epoxy resin and
  - (B) a compound of formula la or lb according to claim 1.
- 11. A composition according to claim 10 comprising, in addition,
  - (C) a polyamine.

- 12. A composition according to either claim 10 or claim 11 comprising component B and, where applicable, component C in such amounts that the sum of the amine and mercaptan equivalents is from 0.5 to 2.0 equivalents, based on one epoxy equivalent.
- 13. A cross-linked product obtainable by curing a composition according to claim 10.
- 14. Use of a composition according to claim 10 as coating composition, adhesive, bonding composition for composite materials or casting resin for the manufacture of mouldings.